

Revisional study of the genus *Crypsithyris* Meyrick, 1907 (Tineidae, Tineinae) in Japan

Makoto SAKAI¹⁾ and Toyohi SAIGUSA²⁾

¹⁾Biosystematics Laboratory, Graduate School of Social and Cultural Studies, Kyushu University, Ropponmatsu, 810-8560 Japan; e-mail: kaseircb@k7.dion.ne.jp

²⁾Baikōden 2-7-1, Chu-ō-ku, Fukuoka City, Fukuoka, 810-0035, Japan; e-mail: Toyohi.Saigusa@ma2.seikyoku.ne.jp

Abstract The genus *Crypsithyris* is revised for Japanese species. Three known species, *C. japonica* Petersen & Gaedike, 1993, *C. saigusai* Gaedike, 2000 and *C. crococomma* Meyrick, 1934 are redescribed, and *C. cana* sp. nov. is described. Erroneous sexual combination of *C. saigusai* in the original description is corrected. Feeding habits of larvae are given.

Key words Tineidae, *Crypsithyris*, new species, feeding habit, Japan.

Introduction

The genus *Crypsithyris* Meyrick, 1907 belongs to the subfamily Tineinae. It is characterized by the presence of a subhyaline spot and the absence of the vein R_1 in the forewing and the presence of a bundle of thick bristles on the female 8th abdominal segment. This genus consists of some 40 species, and is widely distributed in the Palaearctic, Ethiopian, Oriental and Australian regions (Fletcher, 1933; Bradley, 1973; Gozmany & Vári, 1973; Bland, 1976; Robinson, 1980; Moriuti, 1982; Petersen & Gaedike, 1993; Robinson & Nielsen, 1993; Robinson & Tuck, 1996; Gaedike, 2000).

This genus is hitherto known from Japan by three species, *Crypsithyris crococomma* Meyrick, 1934, *C. japonica* Petersen & Gaedike, 1993, and *C. saigusai* Gaedike, 2000. Information on these species is very limited. The descriptions of them are rather insufficient. Photographs of adult insects are available only for *C. crococomma*. The male and female genitalia, which are important for identification are illustrated only partially (Moriuti, 1982; Petersen & Gaedike, 1993; Gaedike, 2000).

Our recent surveys on the lichenophagous tineids in Japan yielded rich material of *Crypsithyris* from many localities. This material includes not only field-collected adult moths, but also adults obtained by rearing larvae collected in the field. This paper is a result of taxonomic study of Japanese *Crypsithyris* based on this material. It contains a new species, *C. cana*, in addition to the specimens of three known species. Detailed morphological study on this material detected characters useful for identification of species, and this study together with information on the larval stage clarified an erroneous sexual combination in the original description of *C. saigusai*.

Bionomics of the genus *Crypsithyris* are poorly known. Unlike other tineines whose larvae feed on feathers, animal hairs and insect debris, the larvae of this genus are known to be lichenophagous (Fletcher, 1933). Although Robinson & Nielsen (1993) have doubts about this food habit, we successfully reared the larvae of *C. japonica*, *C. saigusai*, and *C. cana* with lichen. Bat-guano is also reported as a probable larval

food of *Crypsithyris spelaea* Meyrick, 1908 (Robinson, 1980). Sakai, one of us, observed that the larvae of *C. crococomma* feed on litter, which is a new record of the food habit in the subfamily Tineinae.

The specimens used in this paper were collected by the first author, Sakai, unless mentioned otherwise. The holotype and some paratypes of the new species, *C. cana*, are preserved in the collection of the Biosystematics Laboratory, Graduate School of Social and Cultural Studies, Kyushu University (BLKU) (Fukuoka). Some of the paratypes are donated to the collection of Systematic Entomology, Hokkaido University (Sapporo), National Institute for Agro-Environmental Science (Tsukuba), Entomological Laboratory, Osaka Prefecture University (Sakai), Kitakyushu Museum and Institute of Natural History (Kitakyushu), The Natural History Museum (London), National Museum of Natural History (Washington), and Deutsches Entomologisches Institut (Eberswalde).

Genus *Crypsithyris* Meyrick, 1907

Crypsithyris Meyrick, 1907, *J. Bombay nat. Hist. Soc.* **17**: 752. Type species: *Crypsithyris mesodyas* Meyrick, 1907, by original designation.

Diagnosis. Small- to medium-sized species. Antenna as long as forewing or longer. Maxillary palpus developed. Labial palpus with lateral and apical bristles. Forewing with a subhyaline spot in discoidal cell (*C. crococomma* lacking it); R_1 absent, R_4 and R_5 stalked or fused to R_{4+5} ; M_{2+3} forked in some species. Hindwing with short CuA_2 . Frenulum consisting of a bristle in male and 2 ones in female. Male genitalia with elongate valvae, triangular saccus, juxta usually elongate and separated from vinculum, and transtilla usually developed. In female genitalia, ostium bursae extremely broad, cervix bursae moderately slender and cylindrically sclerotized, corpus bursae with or without a flange-like sclerite surrounding it, which may bear spine-like processes; ovipositor short, papilla analis with 1–3 small apical hooks; a circular row of strong bristles on 8th abdominal segment anterior to ostium bursae.

Remarks. The genera *Crypsithyris*, *Monopis* Hübner, 1825 and *Crypsithyroides* Zimmerman, 1978 share the characteristic subhyaline spot of the forewing. *Crypsithyris* is distinguished from the other two genera by the absence of forewing vein R_1 . And, flange-like sclerite of corpus bursae in female genitalia is never seen in *Monopis* and *Crypsithyroides*. On the other hand, unlike *Crypsithyris*, male genitalia of *Monopis* have a juxta fused with vinculum, and those of *Crypsithyroides* have T-shaped uncus.

The larval cases of *C. japonica*, *C. saigusai* and *C. cana* sp. nov. are similar to those of the genus *Tinea* Linnaeus, 1758. They are oblong and flat in shape, weakly constricted in dorsal aspect at the subapical portions of both ends, each of which has an opening of the case, with dorsal and ventral surfaces weakly convex. The cases are spun with silk, and covered with sand grains.

Key to Japanese species of *Crypsithyris*

1. Forewing upperside creamy to grayish brown in ground color, with a subhyaline spot. 2
- . Forewing upperside light yellow in ground color, without subhyaline spot.
..... *Crypsithyris crococomma*

2. Forewing upperside with a rounded dark spot distal to subhyaline spot. Male genitalia with straight phallus. Female genitalia with or without some 10 free spine-like signa. 3
- Forewing upperside with an oblique dark marking distal to subhyaline spot. Male genitalia with weakly sinuate phallus. Female genitalia with some 20 free spin-like signa. *Crypsithyris cana* sp. nov.
3. Forewing expanse less than 10 mm. In male genitalia, posterior 1/2 of valva tapered to apex. Female genitalia without free spine-like signum. *Crypsithyris saigusai*
- Forewing expanse more than 10 mm. In male genitalia, valva not tapered to apex. Female genitalia with some 10 free spine-like signa. *Crypsithyris japonica*

***Crypsithyris japonica* Petersen & Gaedike, 1993 (Figs 1A, 2A, 3, 7)**

Crypsithyris japonica Petersen & Gaedike, 1993, *Bonn. zool. Beitr.* **44**: 245, 246, figs 6, 7. [Holotype (examined): Zoologisches Forschungsinstitut und Museum Alexander Koenig, Bonn. Type locality: Unzen, Japan.]

Diagnosis. Male genitalia with slender saccus; valva ventrally angulate at middle. In female genitalia, flange-like sclerite of corpus bursae bearing 1–2 strong spine-like processes.

Description. Male. Head: Vertex and face roughly clothed with creamy hairs. Antenna as long as forewing, filiform and slender; pecten consisting of about 10 bristles; each flagellomere covered with a row of brownish gray scales. Maxillary palpus clothed with creamy scales. Labial palpus drooping, covered with creamy scales mesally, gray scales laterally; 1st and 2nd segments with more than 30 lateral and apical bristles. Thorax: Mesonotum and tegula clothed with brownish gray scales; metanotum with pale gray scales on scutellum. Legs extensively covered with creamy scales. Abdomen: covered with pale gray scales dorsally and creamy scales ventrally. Eighth abdominal segment without coremata.

Forewing. Shape: Elongate, 2.9–3.2 times as long as wide including fringe, 3.9–4.4 times as long as wide excluding fringe; apex with fringe roundly produced. Venation: All free veins present except R_1 and 2A; retinaculum triangular, curled at apex; distal 2/5 of discoidal cell expanded anteriorly, R_{4+5} and M_{2+3} forked. Marking: Upperside covered with creamy scales and marked with numerous minute speckles of brownish gray scales and with a dark spot distal to the subhyaline spot; fringe consisting of creamy scales, which have 4–6 shallow dentations apically. Hindwing. Shape: Elongate, 1.8–2.0 times as long as wide including fringe, 4.5–4.7 times as long as wide excluding fringe, apex roundly produced. Venation: All free veins present; costa arched; CuA_2 1/3–1/2 as long as stem of CuA. Marking: Upperside glossy pale gray; fringe consisting of long grayish hair-like scales, mainly with 3 forks apically.

Genitalia. Uncus strongly tapered on apical 1/2, sharply pointed at tip, laterally setose medially; gnathos slender, curved nearly at right angle in lateral aspect, its base articulated with tegumen; saccus slender throughout its length, as long as height of ring. Valva elongate, 1.5 times as long as height of ring, constricted and curved dorsally at middle; basal 1/2 almost parallel-sided, with ventral margin straight; apical 1/2 curved dorsally, spatulate and broadly rounded apically; inner surface of

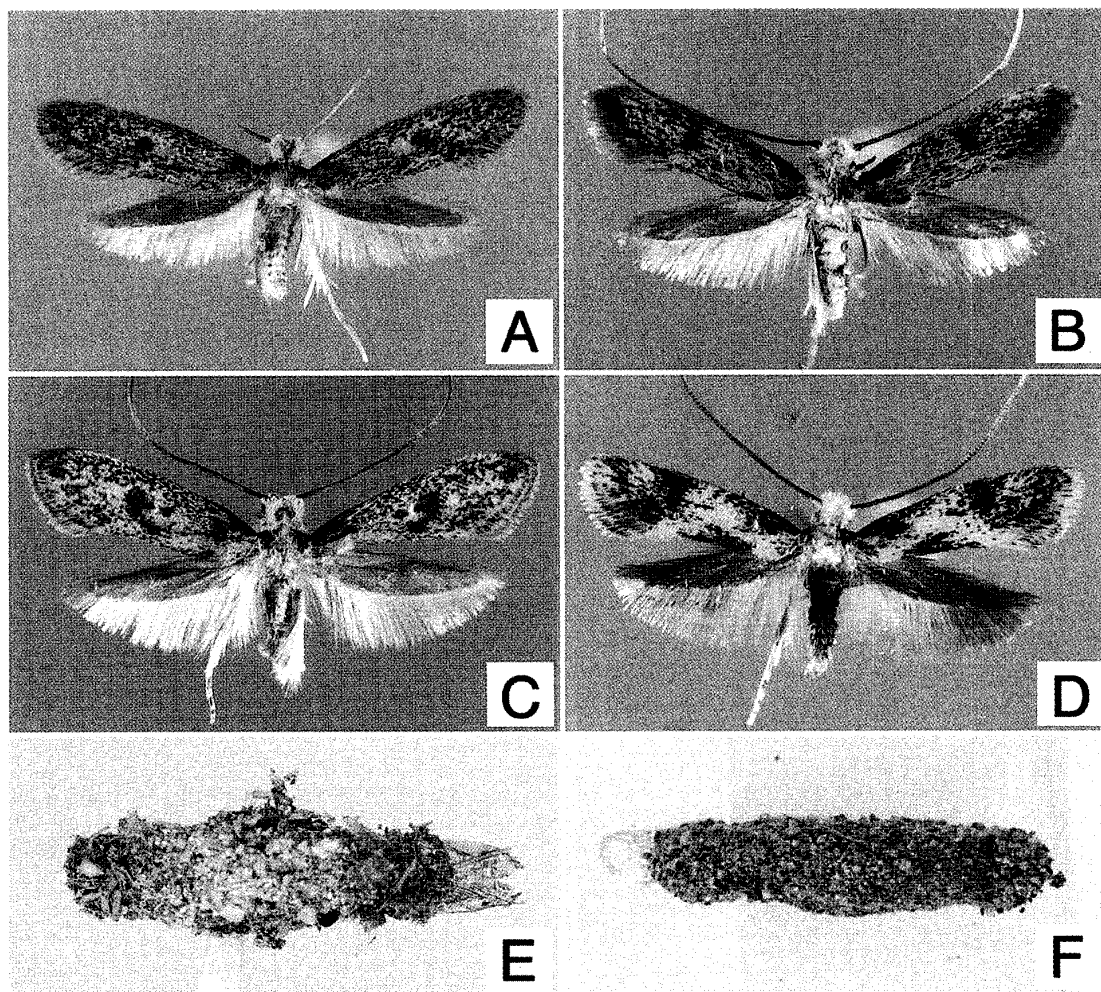


Fig. 1. A-D: Adults of *Crypsithyris* species. A: *C. japonica*, ♂. B: *C. saigusai*, ♂. C: *C. cana* sp. nov., paratype, ♂. D: *C. crococomma*, ♂. E-F: Larval case. E: *C. cana* sp. nov. F: *C. crococomma*.

valva setose. Phallus long, nearly 3 times as long as height of ring, cylindrical, almost straight; vesica with a pair of slender cornuti and granular microtrichia. Juxta absent.

Length of forewing 4.7–5.7 mm; forewing expanse 10.1–12.2 mm.

Female. Resembling male, and differing as follows.

Genitalia. Bands of dense thick bristles on the middle of 8th abdominal tergum and on anterior margin of sternum. Bursa copulatrix 3 times as long as apophysis anterioris. Ductus bursae with a pair of lateral string-like sclerites. Corpus bursae with some 10 spine-like signa and membranous fringe surrounding its middle; posterior half covered with many minute microtrichia. Ovipositor without ventral rod. Papilla analis strongly developed, with 2 minute hooks apically.

Length of forewing 5.0–6.2 mm; forewing expanse 10.6–13.0 mm.

Distribution. Honshu (new record), Kyushu.

Specimens examined. [Honshu] (Nagano Pref.) 2 ♂ 1 ♀, Shiroyama-kôen, Matsumoto-shi, 16. vi. 1995, emerged 4–10. vii; 1 ♂, same locality and collector, 15. v. 1997, emerged 9. vii; 6 ♂ 2 ♀, Nakayama, Matsumoto-shi, 18. vi. 1995, emerged 6–15. vii; 2

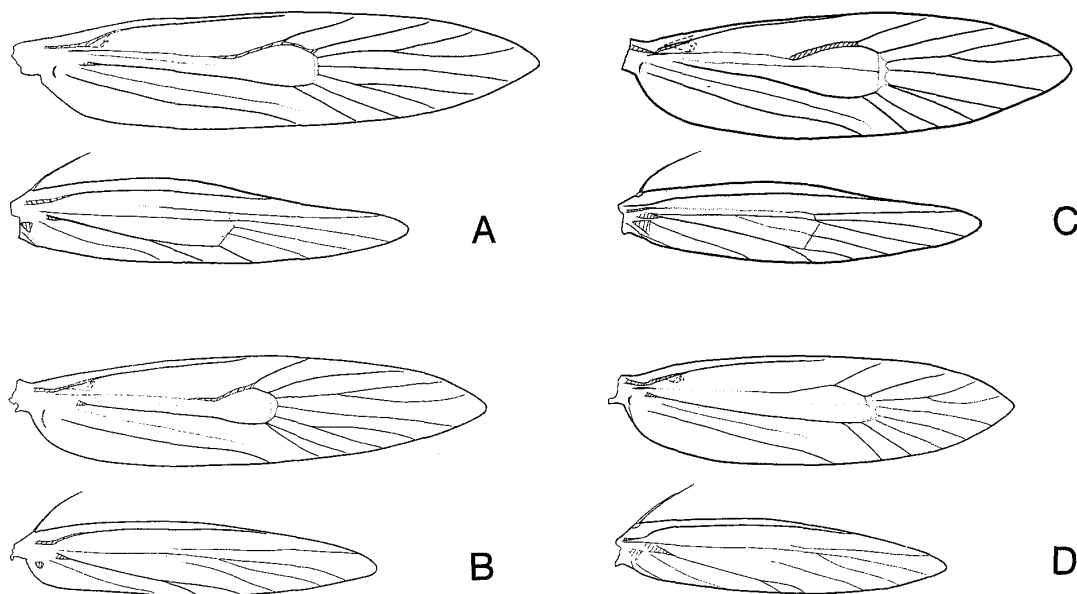


Fig. 2. Wing venation of *Crypsithyris* species. A: *C. japonica*. B: *C. saigusai*. C: *C. cana* sp. nov., paratype. D: *C. crococomma*.

♂ 1 ♀, Niimura, Matsumoto-shi, 13. vi. 1995, emerged 6–10. vii; 1 ♂, Azusa, Azumimura, 16. vi. 1995, emerged 11. vii. (Yamanashi Pref.) 1 ♂ 1 ♀, Hanamizu, Hakushûmachi, 13. vi. 1995, emerged 12. vii. [Kyushu] (Nagasaki Pref.) 1 ♂ (Holotype of *C. japonica*), Unzen, 15. vii. 1915, H. Höne leg (Genitalia slide no. 3173).

Remarks. The larvae are observed in May and June. They feed on lichen growing on stones and woods, and also insect debris.

***Crypsithyris saigusai* Gaedike, 2000 (Figs 1B, 2B, 4, 8)**

Crypsithyris saigusai Gaedike, 2000, *Beitr. Ent.* **50**: 369–370, fig. 42 (only male). [Type locality: Usajingû, Oita, Kyushu, Japan.]

Diagnosis. Male genitalia with tapered valva. Female genitalia without free spine-like signum. Flange-like sclerite of corpus bursae with 6–8 narrow processes.

Description. Similar to *C. japonica*, and differing as follows. Smaller than *C. japonica*. Forewing venation: Distal 1/4 of discoidal cell expanded, CuA_1 and CuA_2 often approximated basally. Hindwing venation: Costa more weakly arched; discocellular veins absent; M_{1+2} forked, CuA_2 as long as 1/5–1/3 of stem of CuA .

Male. Genitalia. Uncus broader, gradually tapered and more extensively longer setose; gnathos very weakly curved in lateral aspect, broad basally and fused with tegumen, both gnathos arms broadly associated; saccus shorter than height of ring and slender. Valva broader, prominently produced ventrally at middle; apical 1/2 gradually tapered to pointed tip. Anellus sclerotized dorsally.

Length of forewing 3.7–4.2 mm; forewing expanse 8.3–8.8 mm.

Female. Genitalia. Eighth abdominal sternum not extended laterally beyond ostium bursae. Ductus bursae without string-like sclerites. Corpus bursae without microtrichia. Apex of papilla analis with a hook.

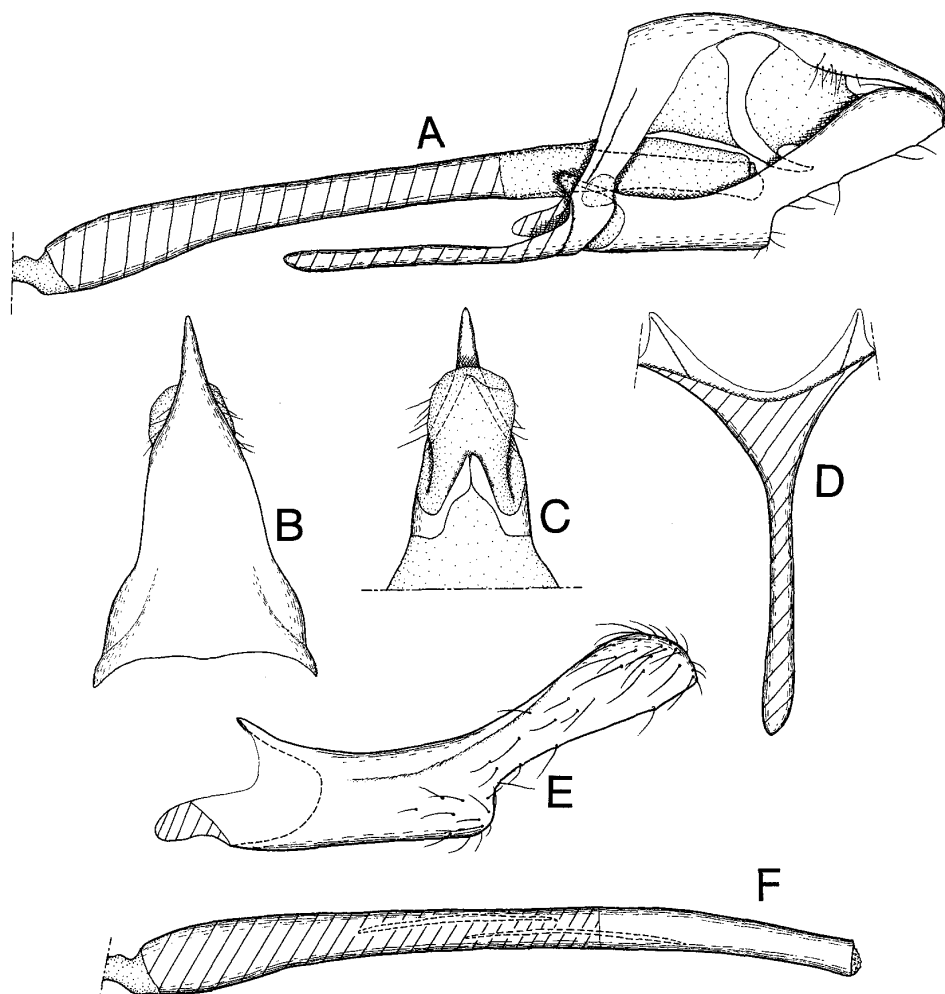


Fig. 3. Male genitalia of *Crypsithyris japonica*. A: Lateral aspect. B: Dorsum, dorsal aspect. C: *Ditto*, ventral aspect. D: Saccus, ventral aspect. E: Right valva, inner aspect. F: Phallus, lateral aspect.

Length of forewing 4.4–4.5 mm; forewing expanse 9.0–9.4 mm.

Distribution. Honshu, Kyushu, Tsushima I.

Specimens examined. [Honshu] (Okayama Pref.) 1 ♀, Takahashi-shi, 7. vi. 1994, emerged 20. vii. (Hiroshima Pref.) 6 ♂ 15 ♀, Onomichi-shi, 1. vi. 1995, emerged 3–17. vii. [Kyushu] (Ōita Pref.) 1 ♂ (Holotype), Usajing, 20–25. vii. 1970, T. Saigusa leg. [Tsushima I.] 3 ♂ 2 ♀, Izuhara, 7. vi. 1994, emerged 4–17. vii.

Remarks. The single female paratype associated with the holotype male of this species in the original description (Gaedike, 2000) is not conspecific with the male, but a female of *C. cana* sp. nov. It was confirmed by rearing larvae.

The larvae are observed in March to July. They feed on lichen growing on stones and woods, and insect debris.

***Crypsithyris cana* sp. nov.** (Figs 1C, 1E, 2C, 5, 9)

Crypsithyris saigusai: Gaedike, 2000, *Beitr. Ent.* 50: 369–370, figs 43–45 (only female), *part. nec*

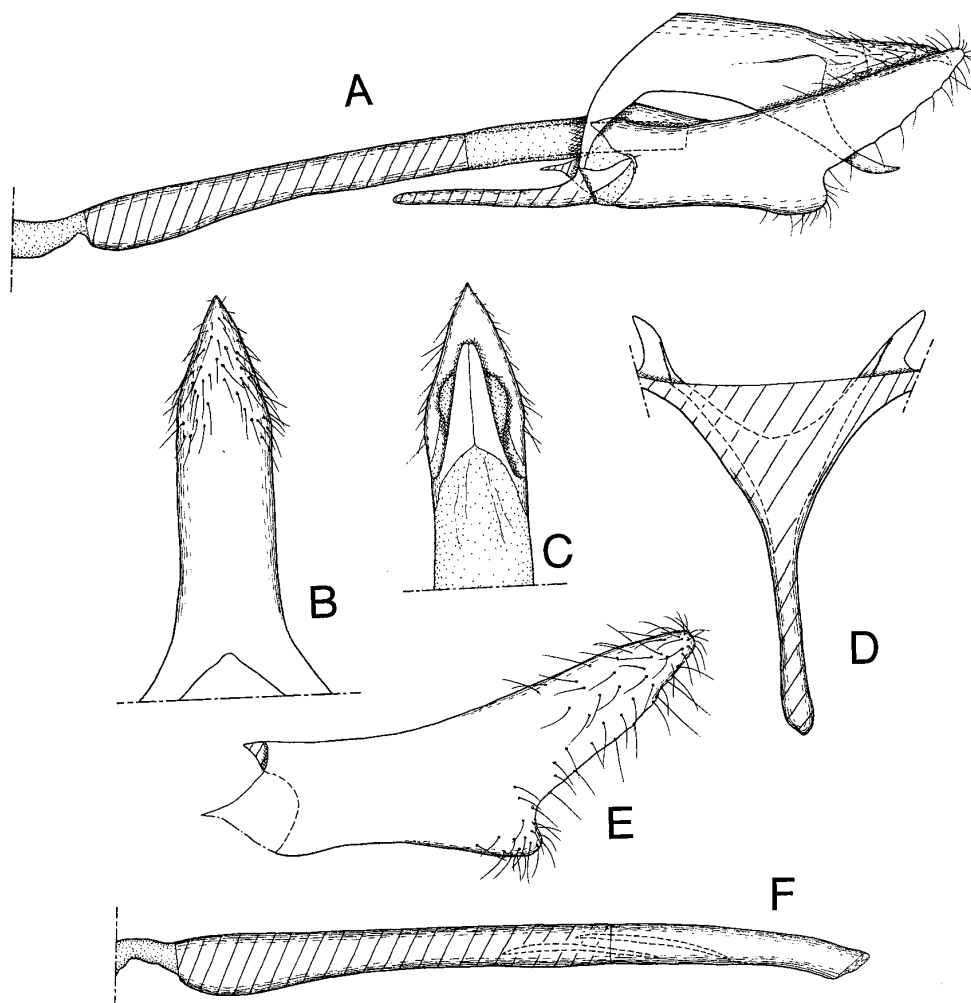


Fig. 4. Male genitalia of *Crypsithyris saigusai*. A-F: Same as in Fig. 3.

Gaedike, 2000.

Diagnosis. Medium-sized species. Forewing upperside with a dark oblique macula distal to subhyaline spot. In male genitalia, valva densely setose at apex and basal 1/2 of ventral margin. Female genitalia with some 20 free small spine-like signa scattered at middle of corpus bursae.

Description. Similar to *C. japonica*, differing as follows: Forewing brighter in color, and broader, 2.5–2.6 times as long as wide including fringe, 3.3–3.6 times as long as wide excluding fringe. Forewing venation: M_2 and M_3 approximated at base or short forked. Hindwing venation: Discocellular veins present; base of M_1 and M_2 approximated or close to each other; CuA_2 shorter than 1/5 of stem CuA .

Male. Genitalia. Uncus gradually tapered to apex which is minutely bifid, and densely long setose; gnathos curved nearly at right angle at middle in lateral aspect, with its base fused with tegumen, both gnathos arms connected ventromedially, with apical portions gradually converging apically; saccus broad, long triangular in ventral aspect, with its apex somewhat flattened and weakly spatulate, 1.3–1.6 times as long as height of ring. Valva elongate, 2.2–2.5 times as long as height of ring, slightly wider

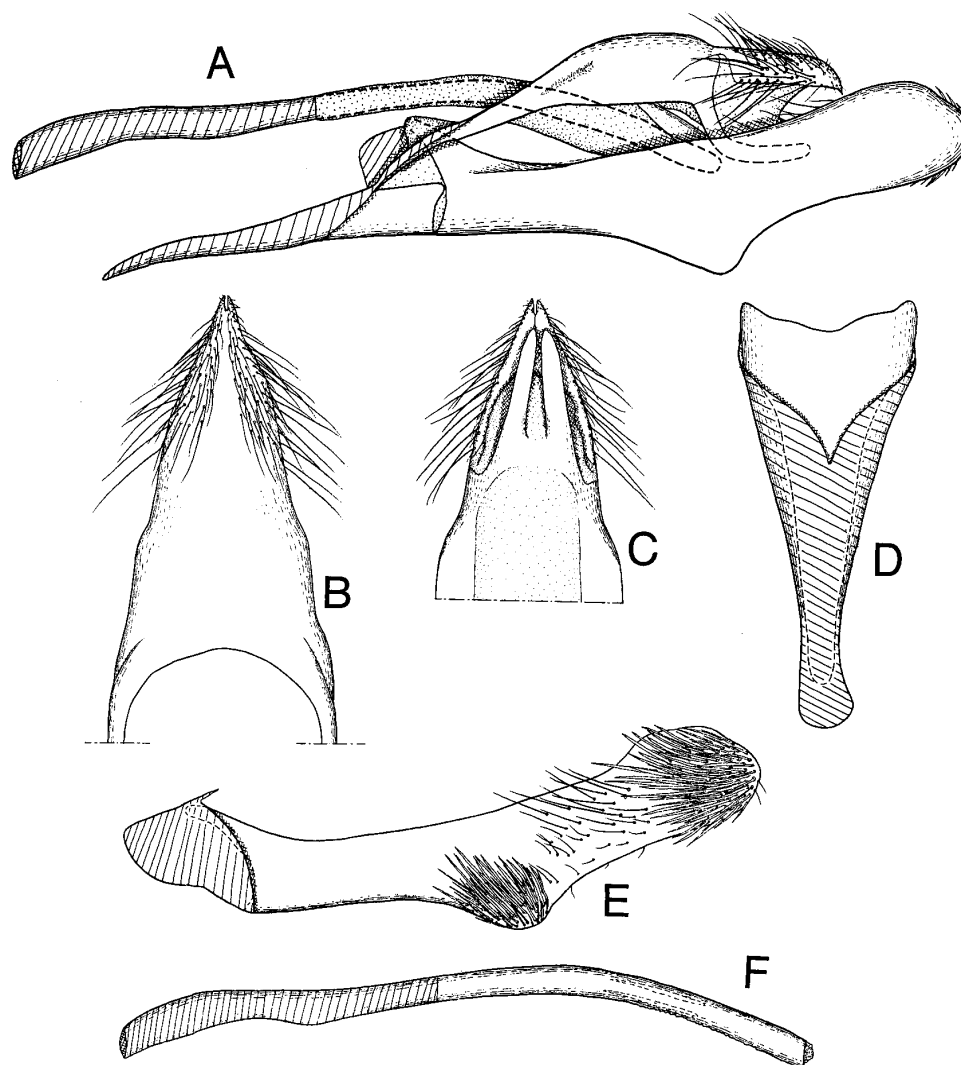


Fig. 5. Male genitalia of *Crypsithyris cana* sp. nov. A-F: Same as in Fig. 3.

on apical 1/2 than on basal 1/2; ventral margin strongly and roundly projected at middle, apex broadly rounded; inner surface of valva with a dense setose patch each on apex and ventral projection. Phallus long and very slender, slightly shorter than entire male genitalia; in lateral aspect, subzonal portion weakly sinuated and suprazonal portion weakly arched. Anellus sclerotized dorsally.

Length of forewing 5.2–5.5 mm; forewing expanse 11.2–12.0 mm.

Female. Genitalia. Eighth abdominal tergum posteriorly with small circular membranization; 8th abdominal sternum stepped in lateral aspect. In corpus bursae, flange-like sclerite bearing 6 processes; with membranous fringe surrounding posteriorly. Hooks of papilla analis more developed.

Length of forewing 4.9–5.7 mm; forewings expanse 10.1–12.5 mm.

Distribution. Honshu, Kyushu, Ryukyu.

Holotype. ♂, Nokonoshima I., Fukuoka-shi, Fukuoka Pref., Kyushu, Japan, 20. v. 1994, emerged 14. vii. Paratypes. [Honshu] (Okayama Pref.) 1 ♂ 1 ♀, Kusama,

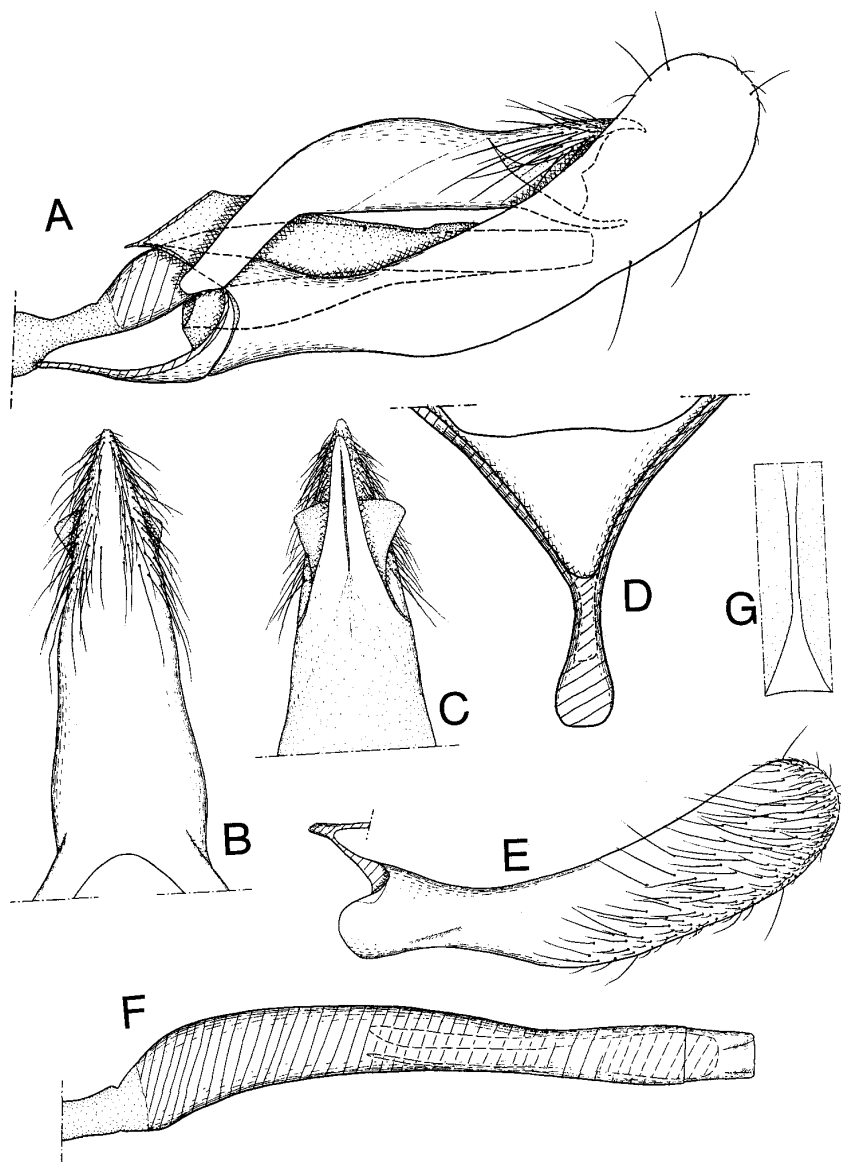


Fig. 6. Male genitalia of *Crypsithyris crococomma*. A-F: Same as in Fig. 3. G: Juxta, ventral aspect.

Niimi-shi, 14. vi. 1994, emerged 29. vi. [Tsushima I.] 12 ♂ 12 ♀, Izuhara, 7. vi. 1994, emerged 28. vi-11. vii; 1 ♀, Kechi, 7. vi. 1994, emerged 11. vii; 1 ♀, Sumo, 7. vi. 1994. [Kyushu] (Fukuoka Pref.) 8 ♂ 6 ♀, Nokonoshima I., Fukuoka-shi, 20. v. 1994, emerged 26. vi-29. vii; 1 ♀, Ozasa, Fukuoka-shi, 4. viii. 1994; 2 ♀, Ino, Hisayama-machi, 12. vii. 1995, emerged 14. vii. (Ōita Pref.) 1 ♀ (paratype of *C. saigusai*), Usajingū, Usa-shi, 20-25. vii. 1970, T. Saigusa leg. (Nagasaki Pref.) 1 ♂ 7 ♀, Manose, Nagasaki-shi, 2. v. 1994, emerged 22-23. vi. (Kagoshima Pref.) 1 ♂, Mt Hoyoshi, Takayama-ch, 20. v. 1994, emerged 26. vi. [Ryukyus] (Okinawa I.) 11 ♂ 7 ♀, Shuri, Naha-shi, 16. ii. 1995, emerged 24. v-5. vii; same locality, 6 ♂ 3 ♀, 24. ii. 1995, emerged 26. iv-28. v. (Ishigaki I.) 11 ♂ 7 ♀, Shiraho, 22. ii. 1995, emerged 19. iv-5. v.

Remarks. This new species is distinguished from other species of the genus by the shape and setose patches on the inner side of the male genital valva. Although the female genitalia of this species are similar to those of *Crypsithyris spelaea* Meyrick,

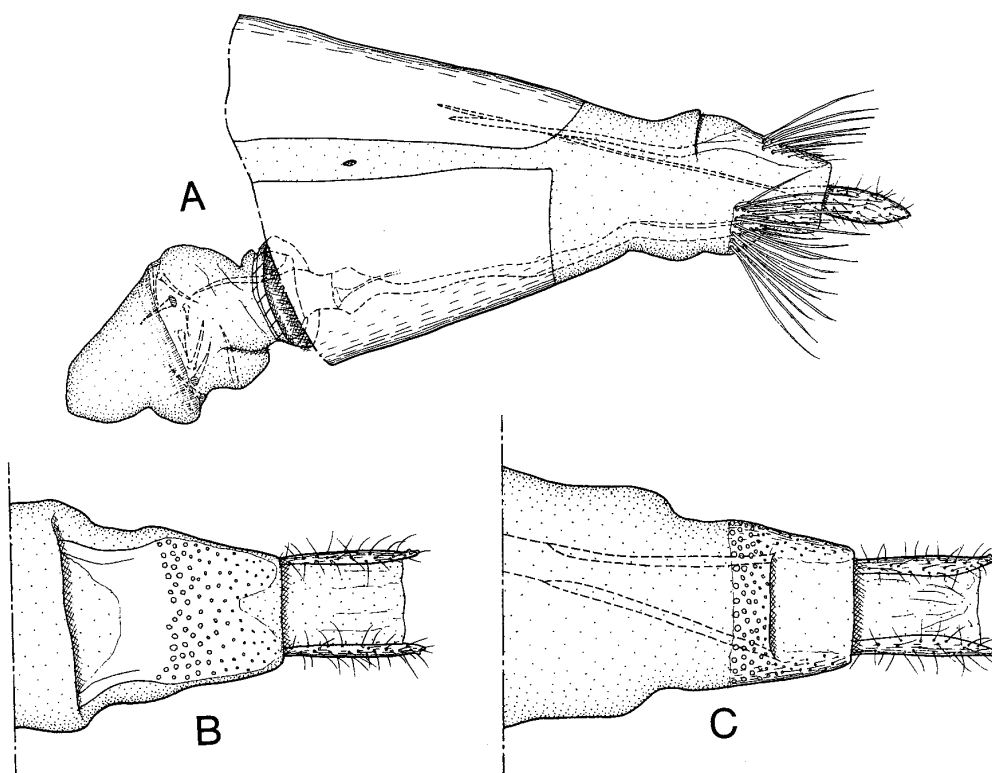


Fig. 7. Female genitalia of *Crypsithyris japonica*. A: Posterior abdominal segments, lateral aspect. B: Eighth abdominal tergum and papilla analis, dorsal aspect. C: Eighth abdominal tergum and papillae anales, ventral aspect.

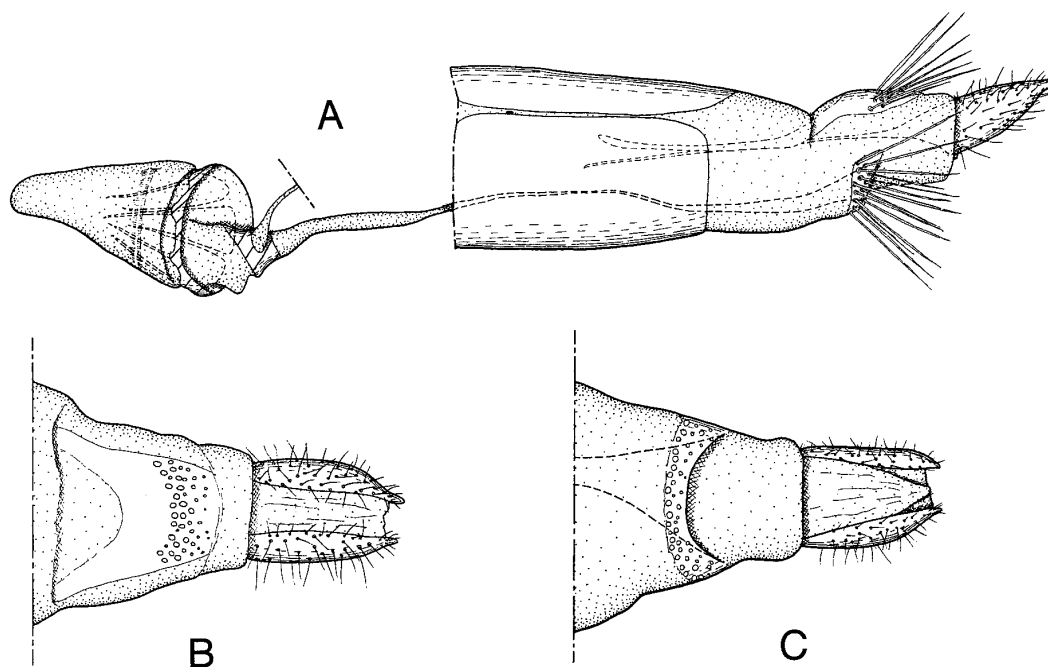


Fig. 8. Female genitalia of *Crypsithyris saigusai*. A-C: Same as in Fig. 7.

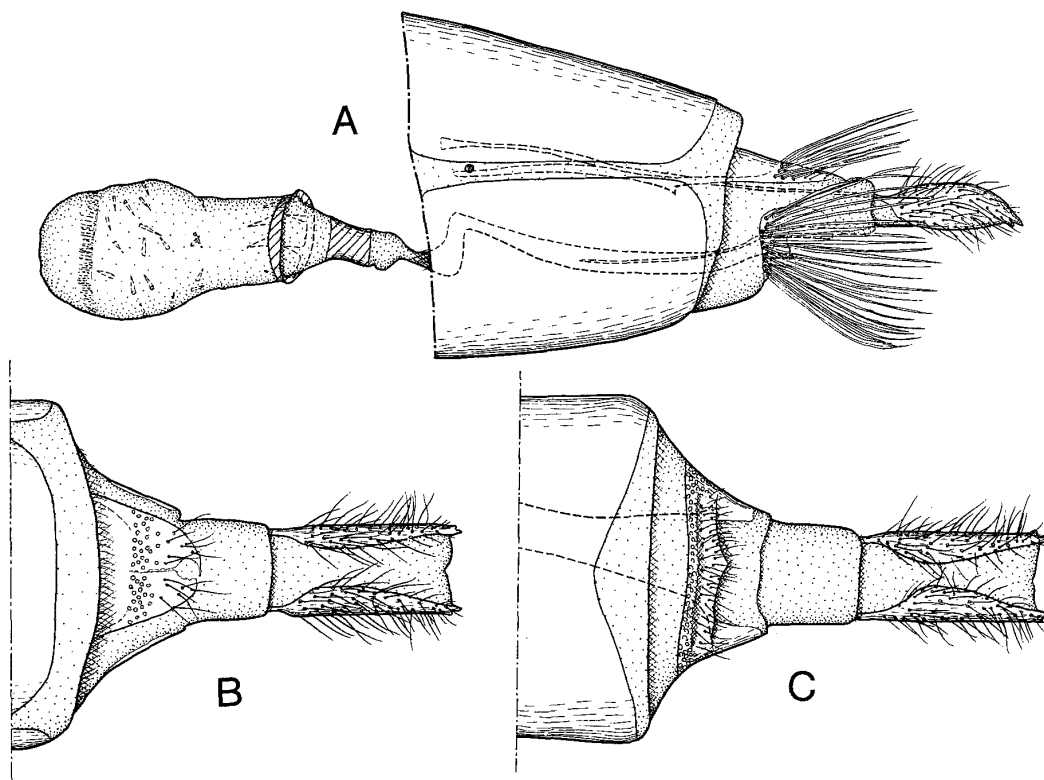


Fig. 9. Female genitalia of *Crypsithyris cana* sp. nov. A-C: Same as in Fig. 7.

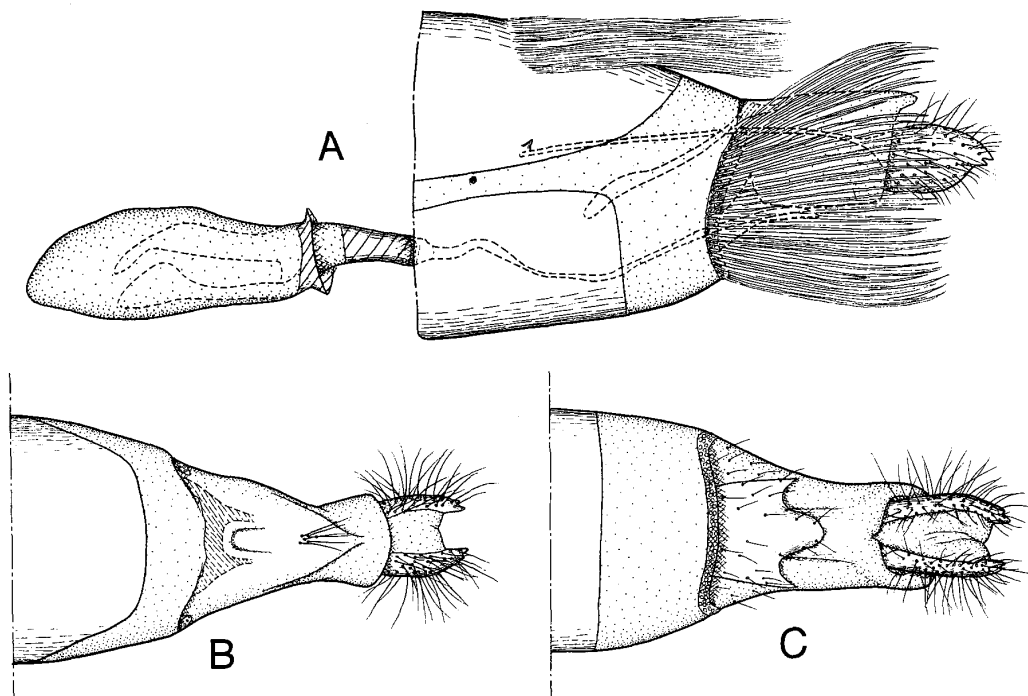


Fig. 10. Female genitalia of *Crypsithyris crococomma*. A-C: Same as in Fig. 7.

1908, the spine-like signa are smaller than those of *spelaea*.

The larva feed on dark green lichen growing on stones and woods and insect debris. In Kyushu, this species was observed in May to July, September and December as larvae, late July to early August as adults. It may hibernate as the larval stage, and emerges in early summer in north from Kyushu.

The specific name is based on the grayish coloration of the wings and of the larval case.

***Crypsithyris crococomma* Meyrick, 1934 (Figs 1D, 1F, 2D, 6, 10)**

Crypsithyris crococomma Meyrick, 1934, *Exot. Microlepid.* **4**: 479. [Type locality: Tokyo, Japan]; Moriuti, 1982, in Inoue, H. *et al.*, *Moths of Japan* **1**: 167, **2**: 186, pl. 7, fig. 46.

Diagnosis. Small-sized species. Forewing without hyaline spot. In male genitalia, valva extending dorsally beyond level of uncus. In female genitalia, flange-like sclerite of corpus bursae bearing 2 distinct spatulae.

Description. Male. Head: Vertex and face roughly clothed with light yellow hairs. Antenna slightly longer than forewing; pecten consisting of about 10 bristles; each flagellomere covered with a row of gray scales. Maxillary palpus clothed with gray scales. Labial palpus drooping, covered with creamy scales dorsally, dark gray scales ventrally; 2nd segment with 5–11 lateral and apical bristles. Thorax: Mesonotum and tegula scattered with light yellow scales and dark brownish gray scales; metanotum with gray scales on scutellum. Legs extensively covered with gray scales, apical portion of each tarsomere light yellow; hind tibia bearing dorsally and ventrally long hairs. Abdomen: Covered with glossy gray scales. Eighth abdominal segment without coremata.

Forewing. Shape: Elongate, 2.6–2.7 times as long as wide including fringe, 3.6–3.8 times as long as wide excluding fringe. Venation: All free veins present except R_1 ; R_{4+5} forked, M_2 and M_3 free, $2A$ vestigial or absent. Marking: Upperside light yellow in ground color; with a dark macula each near base of costa and basal $1/4$ – $1/2$ of posterior margin, with a dark oblique transverse band at basal $3/5$; but in few specimens, dark scales covering almost whole surface of forewing, thus, maculae and transverse band indistinct, fringe consisting of light yellow scales and dark brownish gray scales, which have 3–5 shallow apical dentations. **Hindwing.** Shape: Elongate, 2.1–2.2 times as long as wide including fringe, 4.2–4.5 times as long as wide excluding fringe. Venation: All free veins present; M_1 and M_2 approximated at base or M_{1+2} forked, CuA_2 shorter than $1/5$ of stem of CuA . Hindwing upperside glossy gray. Fringe same color as ground; apex of scales of fringe mainly 3–4 forked.

Genitalia. Tegumen and vinculum demarcated; uncus rather narrowly tapered apically, apex minutely notched, posterior $1/3$ of uncus clothed with long setae ventrally; gnathos developed, tapered, apical $1/2$ of arms of gnathos approximated, apices fused with each other; vinculum narrow; saccus triangular in ventral aspect. Valva elongate, narrow on basal $1/4$, then curved upward, slightly dilated to rounded apical margin; inner surface of valva setose on distal $3/5$; transtilla narrow, connecting costae of valvae; valval apodeme rudimentary. Phallus cylindrical, subzonal portion slightly arched, 10 times as long as suprazonal portion; vesica with 2 elongate cornuti and many minute spinula-like cornuti. Juxta elongate.

Length of forewing 3.5–3.8 mm; forewing expanse 7.6–8.0 mm.

Female. Resembling male, but differing as follows. Forewing brighter in color.

Genitalia. Small corethrogynae situated on 7th abdominal tergum. Anterior margin of 8th abdominal segment with a band of dense thick bristles; 8th abdominal tergum posteriorly with bundle of some 5 setae; 8th abdominal sternum produced posteriorly at middle, sparsely clothed with short setae. Bursa copulatrix 4 times as long as apophysis anterioris. Ductus bursae narrow. Ovipositor without ventral rod. Papilla analis strongly developed, apex with 2 small hooks.

Length of forewing 3.6–4.3 mm; forewing expanse 7.5–8.7 mm.

Distribution. Honshu, Kyushu.

Specimens examined. [Kyushu] (Fukuoka Pref.) 1 ♀, Yamadaryokuchi, Kitakyûshû-shi, i. 1995, emerged 17. iii, T. Saigusa leg.; 1 ♂ 5 ♀, same locality, 19. iii. 1995, emerged 6. iii–3. vi; 1 ♂, Shiiba, Fukuoka-shi, 27. v. 1995, emerged 8. vii; 1 ♂, Nogôchi, Fukuoka-shi, 27. iii. 1995, emerged 28. v; 6 ♂ 2 ♀, Mt Aburayama, Fukuoka-shi, 8. xi. 1996, emerged 1. ii–8. iii. 1997.

Remarks. This species lacks the hyaline spot in the forewing, which is one of the diagnostic characters of *Crypsithyris*. But the following characters indicate that this species should be assigned to *Crypsithyris*: forewing without vein R_1 ; female genitalia with short ovipositor, a bundle of dense strong bristles anterior to ostium bursae, and flange-like sclerite of corpus bursae.

The larvae feed on fallen leaves. The larval case is oblong and flat, with both ends the same width. It is spun with silk, and covered with sand grains. The inside of the case is smoothly covered with white.

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References

- Bland, K. P., 1976. Records of African Tineidae (Lepidoptera)—with description of a new species and a previously unknown female from Ghana. *Ent. s. Rec.* **88**: 20–22.
- Bradley, J. D., 1973. Tineid moths from the Batu Caves, Selangor. *J. nat. Hist.* **7**: 675–682.
- Fletcher, T. B., 1933. Life histories of Indian microlepidoptera (second series). Cosmopterigidae to Neopseustidae. *Scient. Monogr. imp. Coun. agric. Res.* **4**: 1–85.
- Gaedike, R., 2000. New and interesting moths from the east Palaearctic (Lepidoptera: Tineidae),

- contribution to the knowledge eastern Palaearctic insects (11). *Beitr. Ent.* **50**: 357–384.
- Gozmány, L. A. & L. Vári, 1973. The Tineidae of the Ethiopian Region. *Transv. Mus. Mem.* **18**. vi, 238 pp.
- Moriuti, S., 1982. Tineidae. In Inoue, H., Sugi, S., Kuroko, H., Moriuti, S. & A. Kawabe, *Moths of Japan* **1**: 162–171, **2**: 185–187, 449, pls 2, 7, 227, 233, 236–237, 244, 246–248. Kodansha, Tokyo. (In Japanese).
- Petersen, G. & R. Gaedike, 1993. Tineiden aus China und Japan aus der Höne-Sammlung des Museums Koenig (Lepidoptera: Tineidae). *Bonn. zool. Beitr.* **44**: 241–250.
- Robinson, G. S., 1980. Cave-dwelling tineid moths: A taxonomic review of the world species (Lepidoptera: Tineidae). *Trans. Br. Cave Res. Ass.* **7**: 83–120.
- Robinson, G. S. & E. S. Nielsen, 1993. Tineid genera of Australia (Lepidoptera). *Monogr. Aust. Lepid.* **2**. xvi, 344 pp. CSIRO Publications, Melbourne.
- Robinson, G. S. & K. R. Tuck, 1996. A revisionary checklist of the Tineidae (Lepidoptera) of the Oriental region. *Occ. Pap. syst. Ent.* **9**: 1–29.

摘 要

日本産 *Crypsithyris* 属 (ヒロズコガ科ヒロズコガ亜科) の分類学的再検討 (坂井誠・三枝豊平)

Crypsithyris 属 (新称: スカシモンヒロズコガ属) はヒロズコガ科ヒロズコガ亜科に属し, これまで 40 種ほどが東南アジア等から知られている. 本属は衣類害虫で知られている *Monopis* 属と同様に前翅中室に半透明紋を持つが, 前翅の R_1 の欠如, ♀交尾器の剛毛により識別できる.

これまで *Crypsithyris* 属の 3 既知種が日本から知られているが, これらの記載は不十分である. 本研究では日本産 *Crypsithyris* 属の 1 新種を含む 4 種について分類学再検討を行なった.

Crypsithyris japonica Petersen & Gaedike, 1993 (新称: ウスグロスカシモンヒロズコガ) (Figs 1A, 2A, 3, 7)

中室の半透明紋の外側に黒点を持つ. 雄交尾器の saccus は細く, valva 腹縁が中央で角張る. ♀交尾器の corpus bursae のフランジ状の骨片は 1–2 個の発達した突起を持つ.

Crypsithyris saigusai Gaedike, 2000 (新称: コガタスカシモンヒロズコガ) (Figs 1B, 2B, 4, 8)

外見は *C. japonica* に酷似するが, やや小型. 雄交尾器の valva は, 中程から先細りになる. ♀交尾器は刺状の独立した signum を欠き, corpus bursae のフランジ状の骨片は 6–8 個の細長い突起を持つ. 幼虫を飼育して雌雄のコンビネーションを確認したところ, 原記載に用いられた雌個体は *C. cana* sp. nov. であることが判明した.

Crypsithyris cana sp. nov. (新称: ハイイロスカシモンヒロズコガ) (Figs 1C, 1E, 2C, 5, 9)

中室の半透明紋の外側に斜めに伸びる黒斑を持つ. 雄交尾器の valva 内面の先端部周囲と腹側中央に剛毛が密に生える. ♀交尾器は 20 個程の小形, 刺状の独立した signa を持つ.

Crypsithyris crococomma Meyrick, 1934 (クロモンチビヒロズコガ) (Figs 1D, 1F, 2D, 6, 10)

前翅は半透明紋を欠く. 雄交尾器の valva は背方に強く反る. ♀交尾器の corpus bursae のフランジ状の骨片は 1 対のへら状の突起を持つ.

またこれらの生活史についても調査し, *C. japonica*, *C. saigusai*, *C. cana* sp. nov. は岩や樹幹に生育する粉状の地衣類を, *C. crococomma* は地表で落ち葉を食することが明らかになった. 落ち葉食は, ヒロズコガ亜科において初記録である.

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